

Proposal for a hydrogen heavy-duty mobility TCO Parity Certainty Mechanism

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This paper is part of a three-part H2Accelerate policy series:

- Paper 1 sets out the Member State policy packages currently effective to unlock hydrogen trucking in Europe.
- Paper 2 presents a proposal for adapting existing European funding calls (such as CEF AFIF) to better support coordinated truck-and-station deployments as seen in Member States.
- **Paper 3 presents a TCO Parity Certainty Mechanism to unlock long-term TCO certainty and scaled investments into zero-emission H₂ trucking**

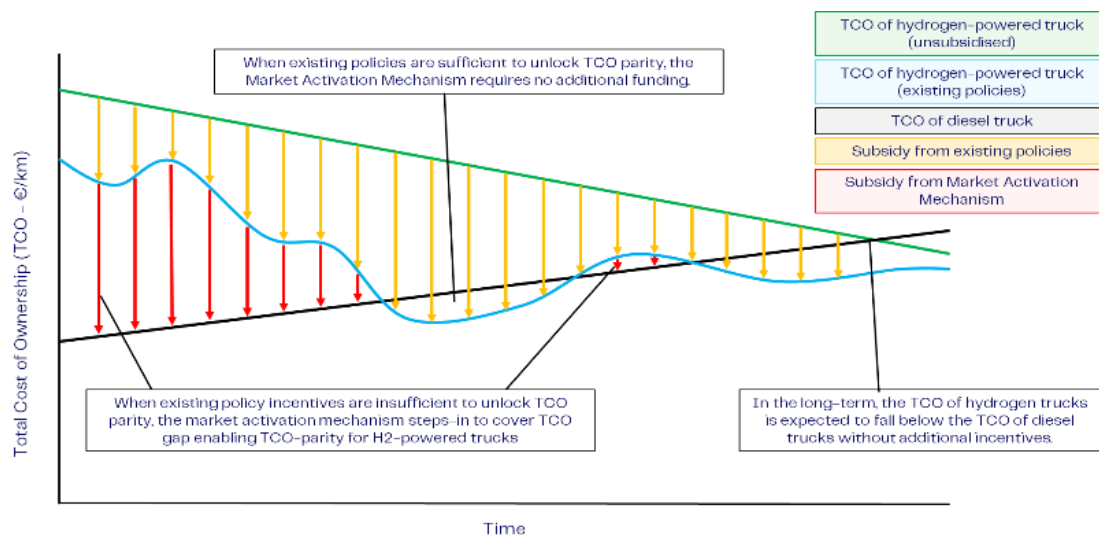
Executive Summary

The European Commission and Member States have implemented policies to incentivise the development and deployment of ZEVs (both battery electric and hydrogen-powered vehicles). These policies are being successfully implemented in leading Member States (e.g. Germany and the Netherlands). In these Member States, tipping points are being reached where heavy-duty ZEVs can achieve a policy-enabled lower total cost of ownership (TCO) than their diesel equivalents. However, truck TCO is specific to individual use cases and there is little visibility at an industry-wide level on when these tipping points are reached. Further, policies with variable cost-advantages (such as RED III credit mechanisms) result in uncertainty regarding future operating costs for fleet operators when implemented alone. When combined with uncertainties over infrastructure availability, this can undermine investments in heavy-duty ZEV solutions. In addition, as explored in the first paper in this series, many Member States are yet to implement the full suite of policies to drive TCO-parity for ZEVs. To scale Europe's road decarbonisation, implementation of incentivising policies must take place across all Member States.

This paper proposes a Mobility-focused TCO Parity Certainty Mechanism to unlock demand for hydrogen-powered trucking and enable scaled investments across the hydrogen value chain. The Mechanism would operate as a temporary, competitively awarded operational support instrument designed to guarantee Total Cost of Ownership (TCO) parity between hydrogen and diesel heavy-duty vehicles, thus reducing the cost of hydrogen paid by end users and securing end user demand.

Any such Mechanism should not replace existing instruments where these have been implemented. Instead, it would cover the residual TCO gap after accounting for existing policy support, including national grants, toll exemptions, RED III credits, ETS II impacts, and other relevant incentives. By complementing existing policies and being awarded through a competitive process, the Mechanism would favour regions with strong policy incentives, enabling cost-effective deployment

and encouraging Member States to implement national policies which support zero-emission transport and the formation of Europe's first zero-emission hydrogen transport corridors. The Mechanism will therefore derisk investments into infrastructure and vehicle deployment, while leveraging existing national policies to maximise the impact of its funding.



Implementation of the Mechanism will achieve the following objectives:

- **Enable a robust and self-sustaining hydrogen mobility market** by unlocking a secure positive business case for hydrogen-powered vehicles and investment security for all stakeholders.
- **Create scaled demand for zero-emission heavy-duty vehicles** by supporting TCO parity with diesel.
- **Accelerate deployment of the AFIR network and low-carbon hydrogen production** by derisking investment in infrastructure through sustainable demand creation and supporting the build-out of the first zero-emission hydrogen transport corridors.
- **Unlock further private investment** by enabling operators to achieve a positive business case and protecting against asset underutilisation.
- **Deploy public funds efficiently** by applying a temporary and dynamic instrument and working alongside other EU and national policies, thereby minimising incentive payments.

This proposal outlines the rationale and key principles for a mobility-focused TCO Parity Certainty Mechanism that can create meaningful early demand for hydrogen trucking, support the deployment of an AFIR-compliant HRS core network, and strengthen Europe's competitive position in ZEV manufacturing.

This Mechanism is proposed to be delivered under the European Commission's new Multiannual Financial Framework (spanning the seven-year period from 2028–2034). As part of its initial €2 trillion budget, the Commission is seeking to reorganise Europe's funding landscape, replacing the multiple-funds and application processes with a single European Competitiveness Fund (ECF) of €409 billion. The ECF will focus this combined budget on activities to unlock European competitiveness,¹ of which scaling zero emission mobility is considered a key topic by members of the H2Accelerate collaboration.

¹ Proposal for establishing the European Competitiveness Fund – [European Commission 16 July 2025](#)

What is needed to unlock scaled hydrogen trucking in Europe?

European Member States have implemented a range of policies to improve cost parity between diesel and zero-emission vehicles. In some markets, these instruments may already be effective at driving TCO parity between hydrogen and diesel trucks. For example, ambitious RED III implementation in Germany (THG Quota) is leading to high value credits for each kg-H₂ sold and lower hydrogen prices at the pump under high-volume offtake contracts, enabling TCO to reach levels competitive with diesel equivalents. One indication of this is Hylane and H2 Mobility's announcement of refuelling prices of around €8/kg-H₂ at selected large-scale hydrogen refuelling stations.² TEAL has also recently announced prices could reach under €6.5/kg-H₂ at refuelling stations in Benelux for professional customers using TEAL Mobility card, depending on yearly volume offtake.³ However, the credits available under the THG Quota also present a challenge for vehicle operators: a business case built on variable credits provides little long-term certainty on hydrogen pricing for ZEV operators. To enable end-users to scale demand in these competitive / near-competitive markets, **TCO Parity Certainty** is needed to develop more secure business cases for these new technologies.

Member State initiatives to guarantee competitive hydrogen pricing at the pump are strongly endorsed and supported by H2Accelerate members. These measures provide certainty of cost-competitiveness with diesel trucks and unlock scaled demand for hydrogen-powered trucking. By deploying these measures to function alongside other enabling policies, Member States can avoid any overshoot in public support or funding while derisking industry's investments.

To develop hydrogen trucking at a European scale, the H2Accelerate collaboration is advocating for a single, pan-European TCO Parity Certainty Mechanism to eliminate the TCO gap between diesel and hydrogen vehicles and promote rapid uptake across Member State markets. The Mechanism must reduce investment risks for fleet operators to support early demand and, in so doing, unlock scaled investments in hydrogen truck manufacturing and Hydrogen Refuelling Station (HRS) infrastructure build-out.

Options for structuring a mobility-focused incentive scheme

The Mechanism will support hydrogen trucks to reach TCO parity with diesel equivalents, working alongside existing measures such as RED III, the Eurovignette Directive, CAPEX subsidies for trucks and stations, and the forthcoming ETS II. Where policy measures are already driving TCO parity or near-parity between hydrogen and diesel trucks, the Mechanism will require no, or very little, additional funding, providing instead a guarantee against changes in policy or market-based mechanism pricing (such as changes in RED III credit pricing).

Several options for awarding this mechanism exist, whether awarded to station owners to reduce the price of hydrogen to the diesel equivalent price, or to vehicle operators to reduce the 'per km' cost of operating a truck. Similarly, the structure of the mechanism could reflect a fixed premium (per kg of hydrogen or per km driven) or a variable contract for difference (CfD), which would award a subsidy to

² [Hylane, November 2025](#)

³ [TEAL Mobility, LinkedIn, 1st of October 2026](#)

cover the difference between a competitive ‘strike price’ and a variable ‘reference price’ linked to the price of the fossil fuel.

The H2Accelerate collaboration proposes several key principles for mechanism design that will unlock alignment with policy objectives and uptake by industry.

Key principles for incentive design

Key requirements of a mobility-focused TCO Parity Certainty Mechanism are:

Heavy-duty focus: The incentive should focus on enabling deployment in the hardest-to-abate areas: 30+ tonne trucks (Class N3) compliant with EU Commission zero-emission HDV definitions.

Competitive bidding: Contracts will be awarded through competitive tenders. This will encourage bidders to optimise their business case and ensure best possible value for money. Competitive bidding can be delivered through competition at different points in the value chain (e.g. competition between midstream, H2 stations, or truck operators) with specific competitive criteria optimised based on the point in the value chain.

TCO parity: The mechanism must provide a pathway for fleet operators to achieve TCO parity (or better) between hydrogen-powered and diesel vehicles, and ensure the subsidy is not retained elsewhere in the value chain.

Long term certainty: Contracts under the mechanism should give certainty on TCO parity over the typical economic lifetime of the asset (e.g. 5+ years for hydrogen-powered trucks).

Near-term deployment: Awarded companies should have a fixed deployment window from the signature of the subsidy to entry into operations, taking into account the timeline for construction of infrastructure and delivery of vehicles. Progressive reduction of the mechanism’s incentive should be introduced for delayed entry into operations to promote near-term deployment and scaling.

Reward for operation: To deliver genuine emissions reductions, the mechanism’s incentive should be awarded on an operational basis (e.g., per kg of hydrogen sold or per km travelled) to reward actual vehicle and infrastructure utilisation and link public support to delivered emissions reductions.

Reflect other instruments: Other policy initiatives (toll exemptions, GHG credits, direct subsidies) must be considered and must be compatible with the mechanism to ensure that the remaining TCO gap will be closed without the risk of over-subsidising.

Supporting cross-border implementation: Truck operators must be able to travel across Member State borders and have the flexibility to refuel at different stations. A phased European-level approach is recommended with an initial target of key European transport corridors.

AFIR compliant stations: The mechanism must be compatible with existing EU legislation and support the roll-out of infrastructure compliant with the AFIR regulation, to provide a consistent fuelling network across Member State borders.

Low-carbon hydrogen sourcing: Awarded companies should be incentivised to choose the most cost-effective supply chains to submit competitive proposals, including local production, domestic distribution, or imports, provided the hydrogen is low-carbon or RFNBO-compliant following methodologies described in the delegated acts of RED III.

Integration with other incentives and eligible hydrogen supply

To minimise costs to the public purse, the mechanism must be combinable with other incentives. The Mechanism should cover only the residual TCO gap after accounting for existing policy support, including national grants (such as combined truck and station funding), toll exemptions, RED III credits, ETS II impacts, and other relevant incentives. This achieves two objectives:

- Those bidding into the mechanism are incentivised to optimise their proposal for the most credible business case, to minimise the cost of the Mechanism.
- Member States are incentivised to implement policies which support zero-emission transport, to attract operators to plan projects in their country.

As with the European Hydrogen Bank, this structure is likely to lead to deployments concentrated in regions with low cost renewable energy and/or strong policy incentives. In progressive rounds of the mechanism award, this geographic disparity could be mitigated through targeted calls focussing on Member States with low levels of infrastructure deployment (without preventing vehicles from travelling across Europe). This geographic focus has already been implemented in the Connecting Europe Facility call (where infrastructure in Cohesion Countries was awarded a higher grant) and the European Hydrogen Bank (where Member States can provide dedicated funding envelopes for projects in a specific country).

Scaling-up deployment

Additional roll-out of hydrogen vehicles and infrastructure can be supported on two time horizons:

Short-term – additional rounds of the Mechanism awarded through regular calls. Regular, predictable subsidy rounds will allow companies to plan ahead to bid into the call. In these future rounds, bidders will be expected to achieve lower costs, leading to larger-scale deployment with the same volume of funding.

Long-term – elimination of incentive through full market activation and long-term policy implementation. As the market for hydrogen mobility matures, the TCO for hydrogen vehicles is expected to reduce. At the same time, diesel prices are expected to increase as carbon emission penalties are increased. In the long-term, the TCO of hydrogen vehicles can be expected to undercut the TCO of diesel vehicles, leading to the deployment of vehicles without subsidies and the elimination of the Mechanism.

Proposed scale of the TCO Parity Certainty Mechanism

Given the urgent need to scale zero-emission freight, the H2Accelerate collaboration proposes the first mobility-focused TCO Parity Certainty Mechanism is run at a scale commensurate with other large-scale European funding schemes for decarbonisation. For example, in the IF25 Hydrogen Auction, €300 million of

funding was provided for RFNBO or low-carbon hydrogen provided specifically to the maritime or aviation sector.⁴

While the scale of deployment achieved with this budget will be strongly dependent on the bid prices received, the H2Accelerate collaboration believes that funding of this scale will deliver a meaningful step towards the decarbonisation of the heavy-duty road freight sector, outsized investment in hydrogen supply chains and vehicle manufacturing, and support the attainment of EU policy objectives.

Guarantees of TCO parity will support scaled demand for zero-emission mobility

The current TCO gap and uncertainty between hydrogen and diesel vehicles is hampering the uptake of these vehicles in Europe, and subsequently the attainment of policy objectives under the HDV CO₂ targets and AFIR. To rapidly activate the market for heavy-duty hydrogen vehicles, a Mechanism to guarantee TCO parity between hydrogen and diesel vehicles is needed. The H2Accelerate collaboration proposes a competitive bidding Mechanism for operational cost support for hydrogen vehicles, which operates in regular rounds, is designed to be complementary with other policy incentives, and can be gradually phased out as the sector scales up. Members of the H2Accelerate collaboration are prepared to work alongside policymakers to implement a Mechanism which can deliver on these goals.



⁴ European Commission, [IF25 Hydrogen Auction](#)